

Reliability and Validity of the Short Version of the Childhood Abuse Self Report Scale in Chinese  
College Students

Yali Zhang\*, Jinxia Zhao, Yuewen Bian, Fuhai Zhang

College of Education, Hebei Normal University, Shijiazhuang, China

\*Correspondence:

Yali Zhang

Email addresses: [zhangyali531@sina.com](mailto:zhangyali531@sina.com)

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# Reliability and Validity of the Short Version of the Childhood Abuse Self Report Scale in Chinese College Students

## Abstract

**Background** The reliability and validity of the current scale for measuring childhood abuse in China are worrying. The development of Short Version of the Childhood Abuse Self Report Scale (CASRS-12) helps to change this situation, but the effectiveness of the tool has not yet been tested in Chinese participants. This study aims to test the reliability and validity of the CASRS-12 in Chinese college students.

**Methods** A total of 980 college students were investigated, of whom 418 were investigated for the first time, and only filled in the CASRS-12. In the second survey, 514 subjects filled in the CASRS-12, general anxiety scale, self-esteem scale and subjective well-being scale.

**Results** Each item of the CASRS-12 had good discrimination. Both exploratory and confirmatory factor analysis confirmed the four-factor model of the scale, and the fitness indicators were  $\chi^2/df=4.18$ , RMSEA=0.079, CFI=0.95, TLI=0.94, IFI=0.95, NFI=0.94. The cumulative explained variance is 76.05%. The scale's internal consistency and test-retest reliability were 0.86 and 0.74, respectively. The CASRS-12 was positively correlated with depression scale ( $r=0.42$ ,  $p<0.01$ ), and negatively correlated with self-esteem scale ( $r=-0.33$ ,  $p<0.01$ ) and subjective well-being scale ( $r=-0.32$ ,  $p<0.01$ ).

**Conclusion** The Chinese version of CASRS-12 meets the measurement standards and could be used to measure the level of childhood abuse of college students.

**Key words** Child abuse; Childhood maltreatment; Reliability; Validity; College students

## **Introduction**

Childhood abuse refers to the behavior of people who have the obligation to support and supervise minors (before the age of 18), which is enough to cause actual or potential harm to their health, growth, and dignity, including psychological abuse, sexual abuse, physical abuse and neglect [1].

A meta-analysis found that the prevalence of physical abuse, emotional abuse, and sexual abuse among primary and middle school students in China ranged from 12% to 30%. However, the prevalence of physical neglect and psychological neglect reached 47% and 44% respectively [2].

Looking at other countries, the incidence of abuse, especially neglect, has remained high in recent years. For example, recent studies have found that the incidence of abuse within one year is as high as 89.9% in India [3] and 69.6% in Ecuador [4]. It can be seen that childhood abuse has become a global problem to be solved urgently. Childhood abuse will not only cause internalized problems such as anxiety, depression, and sleep disturbance [5,6,7] but also lead to externalized problems such as aggressive behavior, antagonistic defiant behavior, addictive behavior, and even self-harm and suicide [8,9,10], and this effect may be long-term.

In view of the prevalence of childhood maltreatment and its widespread and long-term effects, many researchers and policymakers are committed to the exploration of key influencing factors and the dynamic monitoring of incidence in order to prevent better and monitor it. In terms of influencing factors, the current research mainly discusses the inducing and protecting effects of societal, community, interpersonal, and individual factors on childhood abuse based on the framework of ecosystem theory. By analyzing societal factors, it was found that economic recession and social norms about gender inequality can induce abuse, while paid parental leave, increases in minimum wage, and more generous welfare benefits may prevent abuse [11,12]. The

analysis of community factors found that neighborhood crime and socioeconomic disadvantage increase the stress level of parents and families, erode the social network, and in turn, contribute to the risk of child maltreatment. In contrast, providing more health, social and educational services in the community is an important reason to prevent childhood maltreatment [13]. The analysis of interpersonal factors shows that family poverty, parents' mental health and drug use disorders, and intimate partner violence are risk factors for childhood abuse, while social support can reduce the stress of caregivers, improve their well-being, and reduce the risk of abuse [14]. By analyzing individual factors, it is found that young age and special medical needs or disabilities are risk factors for abuse, while self-regulation skills, social skills, adaptive function, and self-esteem are protective factors of abuse [15].

The discussion about childhood abuse does not stop there, and its measurement has become a vital issue. Currently, abuse screening is mainly conducted using questionnaires, and the most commonly used one is the Childhood Trauma Questionnaire (CTQ). It consists of 25 questions, scored on a 5-point scale, and includes 5 dimensions of emotional abuse, physical abuse, sexual abuse, physical neglect, and emotional neglect [16]. In addition, the Child Abuse Self-Report Scale (CASRS) is commonly used in previous studies. It has 38 questions, using a 4-point score, including 4 dimensions of emotional abuse, physical abuse, sexual abuse and neglect[17]. However, some studies have found that the above tools have many shortcomings. Firstly, the number of questions is too large, all of which are more than 20, and the similarity between multiple questions is too high, which seriously increases the burden and boredom of the participants when answering, and reduces the test efficiency. Secondly, the reliability and validity are worrying. Except for CASRS, the reliability of other tools in a few dimensions is not ideal,

especially since the structural validity is poor. The scale contains items unsuitable for the current era or cross-cultural context, such as “My parents do not let me eat enough.” In addition, an efficient and concise questionnaire with cross-cultural adaptability is necessary in the context of the gradual advancement of longitudinal research.

In view of this, based on the full version of CASRS, Fekih-Romdhane and others deleted some inappropriate items, merged some highly similar items, and finally formed CASRS 12[1]. The revised questionnaire has good reliability and validity and retains the original four-factor structure, but the questions are changed to 12, significantly improving the test efficiency. There is also a problem of poor validity in the use of CTQ and CASRS in China, and most studies have failed to give a clear explanation. So far, there is no simple and efficient tool to measure childhood abuse in China. Therefore, measurement tools have always been one of the problems that limit the further advancement of research in this field. This study intends to translate and revise CASRS-12 based on Chinese college students. Since childhood abuse is closely associated with depression, self-esteem, and well-being, this study identified it as a criterion variable to verify the validity of CASRS-12.

## **Methods**

### **Participants**

Sample 1 (for item analysis and exploratory factor analysis): Six classes were selected, and students were invited to fill in online surveys and forward online links voluntarily. Each participant who answers the questions carefully will receive a test fee of 5 yuan. Through snowballing, 418 valid data were finally obtained (186 boys, 232 girls; 121 freshmen, 114 sophomores, 87 juniors, 96 seniors; 189 only children, 229 non-only children; Mean age

19.24±2.13 years).

Sample 2 (for confirmatory factor analysis and criterion validity analysis): Using convenience sampling, 12 classes in literature, history, science, engineering, and art were selected from 3 universities in northern China. 578 questionnaires were distributed, and after removing invalid questionnaires, 514 were retained (223 boys, 291 girls; 197 freshmen, 165 sophomores, 152 juniors; 321 in urban areas, 193 in rural areas; average age 19.93±1.67 age)

Sample 3 (for test-retest reliability): Three classes were randomly selected from sample 2, and the initial test questionnaire was distributed online again after one month. 109 participants were valid in both tests (42 boys, 67 girls, 36 freshmen, 45 sophomores, and 28 juniors).

## **Instruments**

### **Shortened Version of the Child Abuse Self Report Scale(CASRS-12)**

This scale was developed by Fekih-Romdhane et al [1] and contained a total of 12 items to measure physical abuse, psychological abuse, sexual abuse, and neglect. Items are scored from 0 to 3 (never to always). Higher total scores indicate greater levels of abuse. Following the Chinese cultural background and language expression habits, this study invites young scholars with overseas study experience to Sinicize CASRS-12. Then, 20 undergraduates were recruited to evaluate the comprehensibility of the items, and it was found that the proportion of understandable people in each item was more than 90%. Finally, the Chinese version of CASRS-12 was formed after several polishing times.

### **Depression scale**

This scale was derived from the depression subscale of the short version of the Self-Rating Symptom Scale [18]. It has a total of 7 questions (e.g., “I feel depressed and sad”) and has a

unidimensional structure. It is scored from 0 to 4 (not at all to severe), with higher scores indicating more severe depression. The Cronbach's  $\alpha$  coefficient of this scale in this study was 0.84.

#### **Self-esteem scale**

This scale was revised by Chang et al [18]. It measures the general level of self-esteem. It has a unidimensional structure consisting of 5 items (e.g., "I have a positive attitude towards myself"). All questions are scored from 1 to 4 (strongly disagree to strongly agree), with higher scores indicating a higher sense of self-worth. The Cronbach's  $\alpha$  coefficient of this scale in this study was 0.89.

#### **Subjective well-being scale**

The scale is used to measure general subjective well-being [19] and consists of three questions (e.g., "I am happy to live") with a single-dimensional structure. Questions are scored from 1 to 4 (never to a lot), with higher scores indicating greater happiness. The Cronbach's  $\alpha$  coefficient of this scale in this study was 0.85.

#### **Data analysis**

SPSS26.0 was used for descriptive statistics, correlation analysis and exploratory factor analysis, and AMOS24.0 was used for confirmatory factor analysis.

### **Results**

#### **Item analysis**

The correlation between each item and the total score was investigated by item analysis. The results showed that the discrimination of each item ranges from 0.44 to 0.66, all above 0.4, indicating that the item discrimination is good (Table 1), and all questions are retained.

### Exploratory factor analysis

According to Bartlett's sphericity test ( $\chi^2(66) = 2496.61$ ,  $p < 0.001$ ) and KMO (0.81), the items are suitable for factor analysis. Then, the principal component analysis and promax rotation were used to extract factors with eigenvalues greater than 1. In addition, the screening of factors and items should meet the following criteria: (a) the commonality of each item should be higher than 0.4. (b) The factor loading of the item is unique, and the difference in cross-factor loading values of different items needs to be higher than 0.05; (c) It is easier to name factors. Based on the above criteria and combined with the scree plot, 4 factors were finally extracted, and all items were retained. The loadings of each item within the factor exceeded 0.8 ( $p < 0.01$ ), and the cumulative explanation rate was 76.05%. The four factors were named psychological abuse, sexual abuse, neglect abuse, and physical abuse (Table 1).

Table 1 The discrimination and factor loading for each item of CASRS-12

Items	discrimination	psychological abuse	sexual abuse	neglect	physical abuse
1	0.66	0.88			
2	0.63	0.82			
3	0.53	0.86			
4	0.44		0.90		
5	0.45		0.82		
6	0.46		0.90		
7	0.57			0.80	
8	0.54			0.94	
9	0.47			0.90	
10	0.55				0.87
11	0.47				0.83
12	0.53				0.85
eigenvalue		1.01	2.01	4.68	1.42
Variance (%)		8.44	16.78	38.97	11.86

### construct validity analysis

Confirmatory factor analysis was performed on the data of sample 2. Based on the results of exploratory factor analysis, the four-factor model was tested. The results showed that the model



fits well, and the fitting indexes all meet the measurement standards ( $\chi^2/df=4.18$ , RMSEA=0.079, CFI=0.95, TLI=0.94, IFI=0.95, NFI=0.94). It showed that CASRS-12 is a 4-factor structure.

### Criterion validity analysis

The total score of CASRS-12 was positively correlated with depression ( $r=0.42$ ,  $p<0.01$ ), and negatively correlated with self-esteem ( $r=-0.33$ ,  $p<0.01$ ) and subjective well-being ( $r=-0.32$ ,  $p<0.01$ )(Table 2).

Table 2 Correlation between CASRS-12 and criterion variable (n=514)

variables	1	2	3
1. Child Abuse	-		
2. Depression	0.42***		
3. Self-esteem	-0.33***	-0.42***	
4. Well-being	-0.32***	-0.44***	-0.43***

Note: \*\*\*  $p < 0.001$ .

### Convergent validity and discriminant validity analysis

Convergent validity evaluates whether the items measuring potential traits belong to the same factor. Commonly used evaluation indicators include average variance extracted (greater than 0.5 is good, 0.36~0.5 is acceptable), factor loading (greater than 0.7 is good, 0.6~0.7 is acceptable), and construct reliability (greater than 0.7 is good, 0.6~0.7 is acceptable) [20]. The results showed that the average variance extracted from each factor was above 0.5, the factor loading of each item was above 0.6, and the construct reliability of each factor was above 0.7(Table 3). Taken together, the convergent validity of CASRS-12 is good.

Table 3 Convergent validity of CASRS-12

factors	factor loading	average variance extracted (AVE)	construct reliability
1. Psychological abuse	0.72~0.87	0.61	0.82
2. Sexual abuse	0.74~0.86	0.68	0.86
3. Neglect	0.68~0.96	0.69	0.87

4. Physical abuse	0.67~0.87	0.62	0.83
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Discriminant validity means that there are significant differences among the dimensions of a potential trait. If the AVE of a factor is greater than the square of the correlation coefficient between factors, it indicates that the discriminant validity is good [20]. The results showed that the square of the correlation coefficients between each factor was smaller than the corresponding average variance extracted, indicating that the discriminant validity among the factors of CASRS-12 was good (Table 4).

Table 4 Discriminant validity of CASRS-12

factors	correlation(r)	r <sup>2</sup>	AVE compared with r <sup>2</sup>
Psychological abuse - Sexual abuse	0.41	0.17	AVE <sub>1</sub> > r <sup>2</sup> , AVE <sub>2</sub> > r <sup>2</sup>
Psychological abuse - Neglect	0.47	0.22	AVE <sub>1</sub> > r <sup>2</sup> , AVE <sub>3</sub> > r <sup>2</sup>
Psychological abuse - Physical abuse	0.61	0.37	AVE <sub>1</sub> > r <sup>2</sup> , AVE <sub>4</sub> > r <sup>2</sup>
Sexual abuse - Neglect	0.16	0.03	AVE <sub>2</sub> > r <sup>2</sup> , AVE <sub>3</sub> > r <sup>2</sup>
Sexual abuse - Physical abuse	0.43	0.18	AVE <sub>2</sub> > r <sup>2</sup> , AVE <sub>4</sub> > r <sup>2</sup>
Neglect - Physical abuse	0.28	0.08	AVE <sub>3</sub> > r <sup>2</sup> , AVE <sub>4</sub> > r <sup>2</sup>

### Reliability analysis

Based on sample 2, the internal consistency reliability of CASRS-12 was 0.86, and the internal consistency reliability of psychological abuse, sexual abuse, neglect, and physical abuse were 0.82, 0.85, 0.86, and 0.84, respectively. Based on sample 3, the test-retest reliability of CASRS-12 was 0.65, and the test-retest reliability of each dimension ranged from 0.57 to 0.68.

### Discussion

This study tested the reliability and validity of CASRS-12 in Chinese college students for the first time, providing a practical tool for further exploration in the field of childhood abuse in China. The results showed that the Chinese version of CASRS-12 had good discrimination, and the item-total correlation of each item was above 0.4, meeting the measurement standards [20], so all

items were retained. The results of subsequent exploratory factor analysis showed that four factors (psychological abuse, neglect, physical abuse, and sexual abuse) could be extracted from all questions, corresponding to the dimensional classification of the English version of the scale. The factor loading of each item in this scale is above 0.8, and the proportion of the variance explained exceeds 50%, indicating that this scale can reasonably measure the degree of abuse experienced in childhood.

At the same time, in terms of the four factors, neglect accounted for the highest proportion of the total variance, indicating that the childhood abuse problem in current family education is mainly manifested in neglect. At present, with relatively sufficient material conditions, neglect often has new manifestations, such as parental phubbing [21]. Confirmatory factor analysis also supported the four-dimensional structure of the scale, proving the cross-cultural stability of the CASRS-12 structure. It is worth noting that physical neglect and psychological neglect were measured separately in previous scales, but CASRS-12 measures them together, indicating that in the current era, the distinction between the two is low and not as clear as the distinction between physical abuse and psychological abuse. The results are conducive to re-examining the potential categories of childhood abuse from a person-centered perspective and provide instrumental support for an in-depth understanding of the basic conditions and characteristics of childhood abuse.

The results of criterion validity analysis found that CASRS-12 is closely related to depression, and the strength of the correlation is moderate, which is consistent with previous studies [1], indicating that the scale is still effective after the number of items is reduced. It also suggested that childhood abuse may affect the satisfaction of basic psychological needs, which may lead to an

increased risk of depression [1]. In addition, this study found a significant negative correlation between CASRS-12 and self-esteem, which is consistent with previous results [22]. This is because the level of social support felt by abused individuals will decrease, which in turn affects the individual's sense of self-worth and greatly reduces the level of self-esteem [22]. This study also showed a significant negative correlation between CASRS-12 and subjective well-being, and the more childhood abuse experience, the lower the level of well-being, which is also consistent with previous research results [23]. The abuse suffered by children and adolescents in the process of growing up will lead to the emergence of psychological trauma, especially the diffusion of fear and the decline of interpersonal trust, which will reduce the level of individual well-being [24]. In summary, the strength of the correlations between CASRS-12 and self-esteem, depression, as well as well-being are consistent with previous studies, indicating the effectiveness of the scale.

The results of convergent validity analysis found that the questions under each factor can effectively converge, indicating that the measurement content of each factor is highly consistent. The results of discriminant validity analysis found that there were apparent differences between different factors, indicating that there were typical performance differences and unique characteristics among the four factors of child maltreatment. The reliability analysis results showed that the reliability of the four factors in the Chinese version of CASRS-12 was above 0.7, which meets the measurement standards [20]. It indicated that the items under each factor can be closely clustered together to reflect different aspects of childhood abuse. In addition, the test-retest reliability of the Chinese version of CASRS-12 within one month is above 0.6, indicating that the scale is relatively stable across time and is less affected by accidental factors. In short, the introduction of CASRS-12 is a helpful supplement to the measurement tools in the field of

childhood maltreatment in China. It not only has fewer items, but also has good reliability and validity, which is especially suitable for the current longitudinal studies.

## **Conclusion**

The Chinese version of CASRS-12 meets the measurement standards and could be used to measure the level of childhood abuse of college students.

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Not applicable.

## **Authors' contributions**

Yali Zhang conceived and designed this study, analyzed the data, and completed the first draft; Jinxia Zhao, Yuewen Bian and Fuhai Zhang revised the article and edited the writing. All authors contribute sufficiently to this work. All authors read and approved the final manuscript.

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## **Availability of data and materials**

The datasets are available from the corresponding author on reasonable request.

## **Declarations**

### **Ethics approval and consent to participate**

This study was conducted in accordance with the 1964 Helsinki declaration and its later amendments.

Approval to conduct the study was obtained from the Ethics Institutional Review Board of Hebei Normal University. The participants provided their written informed consent to participate in this study.

### **Consent for publication**

Not applicable.

## **Competing interests**

The authors declare that they have no competing interests.

## **Author details**

College of Education, Hebei Normal University, Hebei, China. zhangyali531@sina.com

## **References**

1. Fekih-Romdhane F, Dabbous M, Hallit R, et al. Development and validation of a shortened version of the Child Abuse Self Report Scale (CASRS-12) in the Arabic language[J]. Child and adolescent psychiatry and mental health, 2022, 16(1): 1-9.
2. Wang L, Cheng H, Qu Y, et al. The prevalence of child maltreatment among Chinese primary and middle school students: a systematic review and meta-analysis[J]. Social psychiatry and psychiatric epidemiology, 2020, 55: 1105-1119.
3. Kumar M T, Kar N, Kumar S. Prevalence of child abuse in Kerala, India: An ICAST-CH based survey[J]. Child Abuse & Neglect, 2019, 89: 87-98.
4. Jiménez-Borja M, Jiménez-Borja V, Borja-Alvarez T, et al. Prevalence of child maltreatment in Ecuador using the ICAST-R[J]. Child abuse & neglect, 2020, 99: 104230.
5. Pengpid S, Peltzer K. Prevalence and associated factors of child abuse and its effects on anxiety and depression among children in Sierra Leone: Results of the 2017 Multiple Indicator Cluster Survey[J]. Journal of Psychology in Africa, 2020, 30(5): 466-470.
6. Brown S M, Rodriguez K E, Smith A D, et al. Associations between childhood maltreatment and behavioral sleep disturbances across the lifespan: A systematic review[J]. Sleep medicine reviews, 2022: 101621.

7. Baldwin J R, Wang B, Karwatowska L, et al. Childhood maltreatment and mental health problems: A systematic review and meta-analysis of quasi-experimental studies[J]. *American journal of psychiatry*, 2023, 180(2): 117-126.
8. Li Y, Li Y H, He Y, et al. Psychological resilience mediates the association between childhood maltreatment and self-harm phenotype in Chinese early adolescents[J]. *Child Psychiatry & Human Development*, 2022: 1-10.
9. Wu C Z, Zong Z Y, Huang T T, et al. Childhood maltreatment influences suicidal behavior: Rumination mediates and regulatory emotional self-efficacy moderates[J]. *Death Studies*, 2022: 1-
10. Xiang Y, He Q, Yuan R. Childhood maltreatment affects mobile phone addiction from the perspective of attachment theory[J]. *International Journal of Mental Health and Addiction*, 2022: 1-13.
11. Austin A E, Lesak A M, Shanahan M E. Risk and protective factors for child maltreatment: A review[J]. *Current epidemiology reports*, 2020, 7: 334-342.
12. McLaughlin M. The relationship between cigarette taxes and child maltreatment[J]. *Child Abuse & Neglect*, 2018, 79: 339-349.
13. Morris M C, Marco M, Maguire-Jack K, et al. Connecting child maltreatment risk with crime and neighborhood disadvantage across time and place: A Bayesian spatiotemporal analysis[J]. *Child maltreatment*, 2019, 24(2): 181-192.
14. Conrad-Hiebner A, Byram E. The temporal impact of economic insecurity on child maltreatment: A systematic review[J]. *Trauma, Violence, & Abuse*, 2020, 21(1): 157-178.
15. Meng X, Fleury M J, Xiang Y T, et al. Resilience and protective factors among people with a

history of child maltreatment: A systematic review[J]. *Social psychiatry and psychiatric epidemiology*, 2018, 53: 453-475.

16. Pace C S, Muzi S, Rogier G, et al. The Adverse Childhood Experiences–International Questionnaire (ACE-IQ) in community samples around the world: A systematic review (part I)[J]. *Child Abuse & Neglect*, 2022, 129: 105640.
17. Bernstein D P, Stein J A, Newcomb M D, et al. Development and validation of a brief screening version of the Childhood Trauma Questionnaire[J]. *Child abuse & neglect*, 2003, 27(2): 169-190.
18. Chang C W, Yuan R, Chen J K. Social support and depression among Chinese adolescents: The mediating roles of self-esteem and self-efficacy. *Children and Youth Services Review*, 2018, 88: 128-134.
19. Bae S M. The relationship between smartphone use for communication, social capital, and subjective well-being in Korean adolescents: Verification using multiple latent growth modeling[J]. *Children and youth services review*, 2019, 96: 93-99.
20. Stöber J. The Social Desirability Scale-17 (SDS-17): Convergent validity, discriminant validity, and relationship with age[J]. *European Journal of Psychological Assessment*, 2001, 17(3): 222.
21. Wang X, Qiao Y, Wang S. Parental phubbing, problematic smartphone use, and adolescents' learning burnout: A cross-lagged panel analysis[J]. *Journal of Affective Disorders*, 2023, 320: 442-449.
22. Islam M J, Broidy L, Eriksson L, et al. Childhood maltreatment and decision-making autonomy in adulthood: the mediating roles of self-esteem and social support[J]. *Child abuse*



& neglect, 2022, 129: 105665.

23. Arslan G. Mediating effect of fear and externality of happiness in the association between psychological maltreatment and psychological well-being[J]. Psychology, Health & Medicine, 2021: 1-12.
24. Yilmaz F B, Satıcı S A. Childhood maltreatment and spiritual well-being: intolerance of uncertainty and emotion regulation as mediators in Turkish sample[J]. Journal of religion and health, 2023: 1-17.